

Capsule 2

JULY
SEPT
1986

THE FIRST Science Centre in Tamil Nadu Opens Shortly

The AICT Science Centre, Tirunelveli, is all set to open for the people of Tamil Nadu. Work started in 1984 and it took about 2 years to be completed.

By the side of National Highway 7 connecting Kashmir and Kanyakumari comes up the small but exciting centre, with a two and half storied building of 20,000 sq.ft. exhibition facility, and a Science Park over acres.

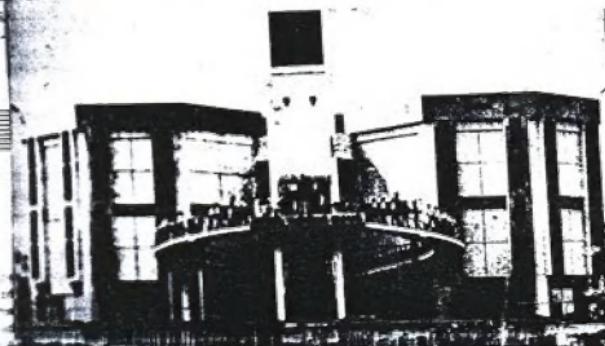
First let's have a look around door galleries.

In view of the Centre's proximity by ocean, emphasis has been laid on awareness of the same. Here we can see how life germinated in

sea, and how the ocean fosters life, by maintaining an intricate food-cycle. Precision models of the researchship Gaveshani and a modern fishing trawler fascinate and inspire the young visitors. Here is depicted the process of pearl-culture, and forms of molluscan shells, with shapes, sizes and colours.

A host of other exhibits on popular science unfold to the children a fascinating world of science. The Creative Ability Centre, the Childrens' Corner with science kits and toys, the auditorium and the reference library offer the visitors unbridled scope to explore things and to bring out their inner potentialities.

The sylvan Science Park offers the children an idyll place for recreation. Exhibits invite them to fun-packed action, and if one is inquisitive enough, in the process one picks up a principle or two, of science. The Life Science Corner with aviary and animalorium adds life to the Park.



NCSM SPEAKS

THE National Council of Science Museum acknowledges the warm acclaim that CAPSULE-1 got from you. Here are some representative comments : —

CAPSULE will fill the communication gap among people working for science communication in India.

Mr. K. V. Sarabhai, Chairman, V. A. Sarabhai Community Science Centre, Ahmedabad.

Its look is striking, its content interesting. I'm sure CAPSULE will be a valuable source of information about science museums.

Mr. N. Harinayana, Director of Museums, Government Museums, Madras.

Going through CAPSULE, it is very interesting to know the various institutions and the work done by them.

Ms. V. Gangadharan, Program Co-ordinator, Homi Bhabha Memorial Teachers' Library, Bangalore.

We read with great interest the CAPSULE. May I request for a copy for our library ?

Ms. S. Punja, Asstt. Director, Centre for Cultural Resources & Training, New Delhi.

Communication is for mutual assistance. You can use CAPSULE as the Meet to voice any problem in your endeavours. A fellow organisation working in the field of science communication might suggest some solution.

Lastly, isn't there a scope for improvement in National Science Centres but CAPSULE earnestly waits your comments also for bettering its service.

SCIENCE ON WHEELS

RAL India. Here time stands still. Here people go about their s at their own pace—a paceurbed by the frenzied changes happen everyday in the field of technology, and the corres-
ing changes in consciousness.



big bus is in. Inscribed on the are "Mobile Science Exhibi- and the museum's name. You und the coach and see a series working or animated exhibits, nising various phenomena of day science. Get into the bus, you find another series of ex-
, on both sides.



What is the Exhibition about?

Suppose the theme is "Our Familiar utility. Yes, familiar it is sure, more familiarity is not knowing us, probe deep, whys and hows— and the exhibits are there to answer. Why an electric lamp glows? How does a fan rotate? How do we run the household appli-
ances? What to do electrical wiring? What safety measures to follow for operation and maintenance? What happens at starting with an observation that moist hands conduct heat and copper produce heat and then to Faraday's law of generation of electro-

Move over to another—"Transformation of Energy". The exhibition explains what is energy, the life-giving, life-sustaining element; the basis of civilisation. The cycle is lucidly depicted—Sun, the elemental source of energy, vaporises water, cloud gives rain, rain-water gives hydro-power. And the myriad modes of metamorphosis.

Next, see "Agriculture". How to test soil, what is a tractor, power tiller, thrasher, harvester and so on; manure, fertilisers, and their use; irrigation, pest-control—agriculture in all its aspects is explained.



Here is just a glimpse of endless themes. Exhibits, in which didacticism, lucidity and aestheticism are fused, are mounted on the museobuses, and the buses are running over the varied terrains of Eastern, Western and Southern India, nine months a year. If the objective of science museum is not just storing artefacts but to reach people, to

A
NEW FLEET OF SIX MUSEOBUSES IS ACQUIRED BY NCSM TO SERVE HITHERTO UNEXPLORED REGIONS OF ASSAM, MAHARASTRA, ORISSA, UTTAR PRADESH, DELHI & NORTH BENGAL

disseminate the experiences of science technology to all, to supplement school education and to foster community development, what mode can be better than museobuses? Birla Industrial & Technological Museum, Calcutta, launched Science on Wheels on November 17, 1965, to cater to the need of the Eastern India, and presently having six exhibition units. Visvesvaraya Industrial & Technological Museum, Bangalore, and Nehru Science Centre, Bombay took charge of Southern and Western regions, with three and five units respectively. With the completion of Science Centre, Delhi, the vast Northern region will be covered.

Two decade's experimentation and operational experience leads to an expertise which happily enables NCSM to assist many an organisation like National Museum, National Museum of Natural History, New Delhi, and Indian Museum, Calcutta, by lending design and technicalities.



The frequency of 76 years makes it virtually a once-in-a-lifetime affair. For common people, students, enthusiasts, and not for professionals, professionals of the world were geared up—their spacecarts Spartan, Pioneer, Vega I and II, Giotto etc. had close encounters with the comet; and 1987 onwards space-explores will be tracking the Comet through aphelion. But for the amateurs, and commoners, these Science Centres—Nehru Science Centre, Bombay and Birla Industrial & Technological Museum, Calcutta made dream come true. These Centres spared them nights to revel in, with stars, planets and the Comet.

NSC, Bombay, March 15, 1986. People started thronging from dusk. People from all walks of life. Students, teachers, office workers, businessmen—after day's work. Housewives with toddlers on lap. Celebrities and dignitaries. Many came with family. As the organisers, people's response was simply overwhelming. Program started at 8 P.M. in the Centre's lawn with initiation lectures and slide shows by the guides, enumerating the history of the Comet and its watching. No classroom-type lecture, nor encased in the auditorium, but unfolding the mysteries of extra-terrestrial bodies, right under the canopy of a starry sky.

From 9 started filmshows, to go on till dawn. Entertaining, instructive science-films. A gag perhaps, but very pleasant, to while away the queuing hours to the telescope. Watching started by 10. For the amateurs it must have been an odyssey through galactic constellations. For regular amateurs, old acquaintance renewed. The Comet appeared at 4.45 A.M. 2000 people were there for the first and perhaps the last time in their life.

BITM, March 22. Floodlit lawn, more rows of chairs. Festivity was the air. Dr R. Sarker, Curator, the Planetarium and M. A. Bandopadhyay, Director, Regional Astro-Science Centre, Calcutta joined the show as commentators, also as panel speakers.

A wide-angle buzzed around, people did just as they



pleased. Sky observation by telescope on Museum terrace from 12 midnight to 4 A.M., film shows at Museum lawn from 1 to 4 A.M., video shows at reception hall from 1 to 3 A.M. In the auditorium, science quiz, with prize galore.

The Comet, unlike its appearance in 1910, failed to give a glorious view this time. Earth was on the other side of the Sun when the Comet was at its brightest at perihelion, or in closest proximity to the Sun. Sooty, cloudy sky of metrocities bit obliterated the view. Anyway, factors are beyond mortal manipulation; there's no option but to wait for July 2061. However, on popular demand viewing was arranged on nights of April 09 & 10, with rewarding results, and for a larger number of visitors too.

Places were different but sights were same. People made the Centres their home. Sleep seems trifle in such a night with stars. They passed the night—talking, listening, seeing. Some even succumbed to an uninhibited nap, on the lawn. Velvety grass, cool summer night breeze and choice food from canteen—an irresistible combination perhaps. For the guests,

Young participants of various programs. Their enthusiasm was most encouraging.



Science Centre Night must be an experience, out of the cramped surroundings, fetters of the mundane daily chore, its painful crudity and hopeless dreariness. Away for a while from one's own shifting desires too. For the Centres it is no less an experience, offering it for the first time, to the people of Bombay and Calcutta. Before this, for them such nights were myth beyond reality.



EW PROGRAM

NEW EXHIBIT

NEW KIT

National Science Seminar—1986

"Green Revolution And Our Future"

National Council of Science Museums

Inculcating in students the spirit of inquiry and analytical thinking, offering them a platform to exchange ideas and enhancing national integration, this annual seminar is held. From block to District to State and then culminating in National level—are the steps. Interested students upto Class X should contact Education Department of their respective State Ministry. Winners get NCSM scholarships for higher studies.

National Conference on Environmental Planning and Pollution Control.

Association of Indian Engineering Industry,
Calcutta, April 05, 1986.

Summer School in Electronics—1986

The Institution of Electronics & Telecom Engineers,
Visvesvaraya Industrial & Technological Museum & Indian Institute of World Culture, Bangalore,
IITM, May 01-27, 1986.

Exhibition on Sir Jagadish Chandra Bose and his activities.
District Science Centre,
Kurukshetra, April 30, 1986.

"Know the Insects"
Teachers Training Program.
District Science Centre,
Kurukshetra, May 01-15, 1986.

Workshop on Environmental Management

Department of Science for Environment, Environment and Committee
for Technical Training and for Development of Resources
Santacruz, Mumbai, August 1986.

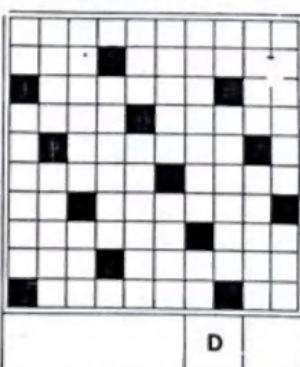
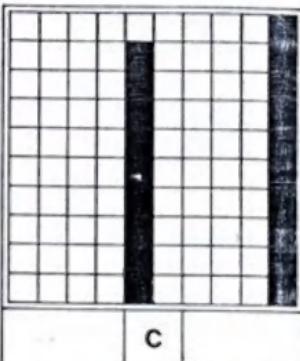
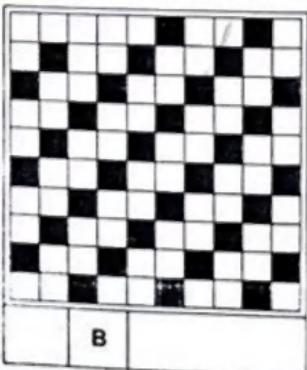
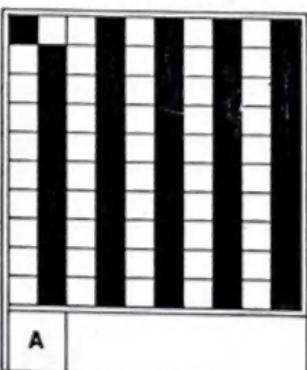
The 2nd Death of Acharya Prafulla Chandra Ray, an exhibition
Science Museum, Calcutta, August 20, 1986.

Mathematics is Fun

Prime Number is that which can be divided by 1 or by that number only. 2, 3, 5, 7, 11, 13, 17 etc. are such Prime Numbers. Nehru Science Centre, Bombay has developed a kit that can identify all the Prime Numbers in 1-100. How?

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Divide a 10" x 10" board into 100 units. Put 1-100 in the squares.



Take four pieces of transparent paper and mask them as shown in A, B, C, D.

2	3	5	7	
11	13	17	19	
	23		29	
31			37	
41	43	47		
	53		59	
61		67		
71	73		79	
	83		89	
91			97	

When put over the board, Mask A eliminates 1 and all multiples of 3 except 3 itself. Mask B, C and D eliminate all multiples of 5, 7 and 11 respectively. Remaining are the Prime Numbers.

Museum. But actually it is on Museum of Science & Industry in Portland, USA. That is really what happens when the travelling exhibition "India : A Festival of Science" stays somewhere. OMSI, host museum, to accommodate giant of a guest, had removed own exhibits, suspended normal rooms and put the travelling exhibition "India : A Festival of Science" over the museum. It is our privilege to receive such a treat in OMSI. They also willingly bear the sieze; mystery that is India unveils before their eyes.

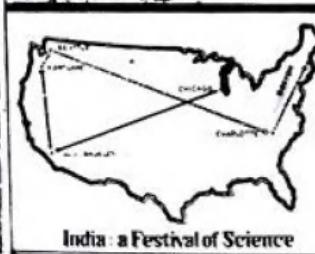
Therein lies the interest of the Americans ? They come to know

technology has a continuum of over five millenium. Ancient India had some great contribution to sciences like mathematics, astronomy, chemistry, medicine and so on. Our traditional crafts speak of a developed technology, and that our present day marked progress in science technology is nothing but a logical resultant of our tradition. And that is not just high-tech fetishism, but tuned to meet the diverse needs of a myriad nation.

So goes on this sojourner minstrel, preaching the message of India - India that was, India that truly is. From Museum of Science & Industry, Chicago to California Museum of

Oregon Museum of Science & Industry, Portland. By the time CAPSULE reaches you, "India : A Festival of Science" will be at Pacific Science Centre, Seattle, before moving over to Discovery Place, Charlotte and ending up at Museum of Science, Boston. A journey across the USA.

If visitors' statistics and response convey something, then it is a real success in Portland, with 1,44,000 visitors. Wherever the exhibition is, it becomes the talk of the town. Dispelling all prejudice and misnomer, it goes on motivating the Americans towards discovering India.



ENTS INDIA

National Council for Science & Technology Communication

NCSTC was set up during the 5th Plan Period with a secretariat in the Deptt. of Science & Technology, Govt. of India. Popularisation of S & T and inculcation of scientific temper in people are two of its objectives. Important under NCSTC programme are:

1 Generation and maintenance of computerised databases on agencies working in areas of interest to NCSTC. S & T communication in Indian languages, popular S & T application and communication software presently existing.

2 Development of mechanism to increase the number of S & T communicator in India through training, orientation and awareness program.

3 Research in S & T communication.

4 Establishing National S & T communication Information Network and development of software for media.

5 Sponsoring field-based projects directed towards achievement of objectives of NCSTC Program.

6 Institution of incentive like awards, fellowships and scholarships to recognise outstanding efforts in areas of interest to NCSTC.

Other activities include publication for S & T communication, organising exhibitions and fairs etc and development of a computerised monitoring system for projects of the Government.

Centres of Astronomy

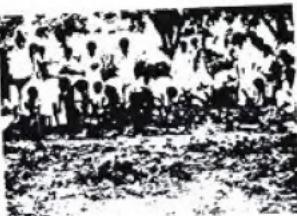
Birla Industrial & Technological Museum, Calcutta, the first in the nation, which celebrates its 27th anniversary with a unique major exhibition "Exhibition of Astronomical Models". Birla Science Academy participated in this project. Inaugurated on May 03 by Dr. J. C. Bhattacharya, Director, Indian Institute of Mathematics, New Delhi.

exhibition consisting of visual panels and a number of working exhibits, will run for months to come.



District Science Centre,
Dharmpur

The District Science Centre opened its door on April 27, 1984, to the service of the tribal communities of Dharmpur in Gujarat. Objective of the Centre is to yoke together science and peoples' needs; exhibits and extension activities are the reciprocating modes.



The Centre works for creating peoples' awareness about the region's wealth like forest, agriculture, water resources and so on, and for developing appropriate technology in order to utilise them for optimum benefit. Exhibits speak of the importance of forest for a stable economy; rotational and multiple farming, and of proper mechanisation in farming. The Centre imparts training on a wide variety of subjects—from sericulture to telescope making.

B. M. Birla Science and Technology Centre, Jaipur

In view of the research and development program and the necessity of adopting high technology requiring complex and sophisticated research tools, the Birla Institute of Scientific Research is setting up a high-level scientific and technological research centre at Jaipur.

The Centre includes research laboratories, a computer corner, an information dissemination processing and retrieval cell, a library, seminar facilities, science & technology exhibits including an astronomical observatory and planetarium. The major research program to be undertaken at the Centre includes bio-techniques and genetic engineering, energy devices and systems, computers and robotics, industrial prototypes and pilot plants, astronomical studies and remote sensing studies. The Centre will have a covered area of nearly 2 lacs sq.ft. and the cost is estimated to be 10 million US \$.

ngs and Monuments Commission for England was set up in 1984, to care of England's great inheritance—prehistoric and Roman ruins, castles and monasteries, parks and gardens—and to bring them to life. Preservation and presentation are the dual job of the Commission. The Commission recognises the vital importance of historical and archaeological scholarship, but its main job is to provide recreation and entertainment to people, stimulating historical imagination, explaining and presenting the events excitingly and by offering facilities. Membership is open

to English Heritage runs various short courses, free of cost, for students in conjunction with the Department of Education & Science, and Environment, a short course for teachers, "Learning from the Past," will be conducted from April 07-12, at Christchurch College, Can-

of Science & Art in Manhattan, USA.



"Value -"

Canvas and paint worth \$100. Paint a masterpiece and it sells at thousands, even millions. This is value-addition, by creative, ingenuous labour.



The abstract concept of "value -" comes alive at Singapore Science Centre. Aiming to reach out to the "future workforce", the exhibition, with exhibits, artefacts and graphics explain the concepts vitally important in modern economics and production technology. Running from November 01-30, 1985, "Value -" is the testbed for a future major exhibition on productivity, says the Centre.

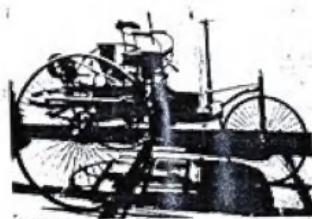
Pterodactyl—On The Wing

A lot of interesting things are going on at the member Centers of the Association of Science Technology Centers, USA. Here is one—



Anachronism? No, "ON The Time Traveller" with an 18" wingspan is a radio-controlled pterodactyl, ready for a test flight, prior to playing a major role in "On the Wing", a new IMAX film in production for the Smithsonian Institution. ON, linking paleontology and aerodynamics, costs \$500,000.

Addendum : You might have seen it in TV. Amid Jubilation, ON was on the wings, but suddenly dropped dead. Very pathetic. But we hope, with the scientists' efforts, it will be back to life soon.



100 Years of Cars—an Exhibition by Deutsches Museum, FRG.

Deutsches Museum has opened the Car Display Hall, on May 07, 1986, coinciding with the annual get-together of the Museum Directors. On May 06, there was skill test driving of the historic vehicles, and they were taken in a big procession through the heart of Munich. Important among the present were—Dr. Berghofer-Weichner, Minister for Education & Culture, Bavarian State Ministry; Herr Kronawitter, Mayor of Munich and Dr. Madelung, Chairman of the Curatorium of the Museum.

Sorry, an error that we overlooked. You too, Caption for the Exploratorium photograph in CAPSULE 1, pp. 7 is—

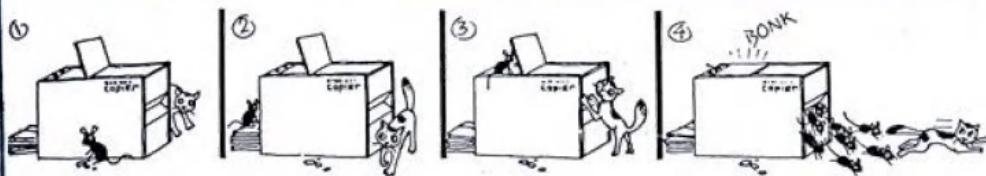
"Vibrations set up in a metal plate make sand grains settle into specific patterns that reflect unseen resonances."



25 Years of Space Photography

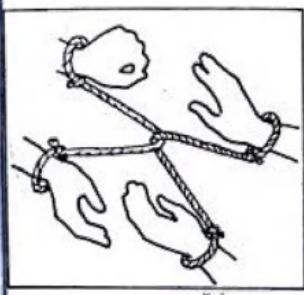
Exhibition—25 Years of Space Photography with over 300 photographs from the Jet Propulsion Laboratory, California Institute of Technology, scheduled to be displayed in National Center of Science

IN LIGHTER VEIN...

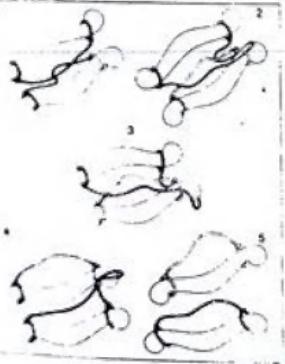


Puzzle

Take one metre rovelength. Ask your friend to tie (not too tight) both the ends on your wrists. Do the same on your friend, with his rope making a loop over your rope, and thus locking both of you, as seen in the picture below.



Well, how to separate you now? Without untying the knots or cutting the ropes?



How to unlock you?—So simple,

Holmes The Numismatist

Police Chief: Here's the photograph, Sir. This precious antique Roman coin must be traced. It's a matter of prestige.

Holmes examined intently the snap. Eager, expectant silence in the room. After a time Holmes' lips twisted, into a sardonic smile, and then broke into a laughter. Yeah, that's right, the coin is fake. Good riddance to bad stuff, he muttered.



What's wrong with the coin?—Use your magnifying glass, and find out.



Prof. Brihospoti



THE NEXT...

Visvesvaraya Industrial & Technological Museum, Bangalore creates a new Children's Gallery. CAPSULE-3 will give you the details.

WE NEED...

Editor CAPSULE is looking forward to your sending by July 31, 1986 publication materials for CAPSULE-3. Please send short notes, photographs, problems, suggestions, cartoons and puzzles.